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REMARKS

Claims 1-23 are pending in the present application. Reconsideration and allowance of pending claims 1-23 in view of the following remarks are requested.

The Examiner has objected to the abstract as having more than 150 words. Applicant has amended the abstract as suggested by the Examiner.

The Examiner has rejected claim 1 under 35 USC §102(e) as being anticipated by U.S. patent number 6,110,842 to Okuno et al. ("Okuno"). For the reasons discussed below, Applicant respectfully submits that the present invention, as defined by independent claim 1, is patentably distinguishable over Okuno.

The present invention, as defined by independent claim 1, teaches a first area and a second area in a dielectric having a first dielectric constant. Thus, the first area and the second area are part of a single dielectric, and as such both areas initially have a single dielectric constant. The present invention, as defined by independent claim 1, also teaches covering the first area in the dielectric. As disclosed in the present application, the first area may be covered, for example, with photoresist. As disclosed in the present application, the first area in the dielectric is covered to prevent the first area from being exposed to a dielectric conversion source.

The present invention, as defined by independent claim 1, further teaches exposing the second area in the dielectric to a dielectric conversion source. As disclosed in the present application, the dielectric conversion source may be, for example, E-beams or I-beams. As a result of exposure to the dielectric conversion source, the dielectric

constant of the dielectric in the second area is increased from a first dielectric constant to a second dielectric constant. Thus as a result of exposure to the dielectric conversion source, the second area of the dielectric has a second dielectric constant that is greater than the first dielectric constant of the first area, which was not exposed to the dielectric conversion source.

In summary, the present invention, as defined by independent claim 1, is directed to (1) covering a first area in a dielectric to prevent exposure to a dielectric conversion source; (2) exposing a second area in the dielectric to a dielectric conversion source; and (3) increasing the first dielectric constant of the dielectric in the second area to a second dielectric constant. In contrast, none of the above three features of the present invention, as defined by independent claim 1, is taught, disclosed, or even suggested by Okuno.

Okuno specifically discloses forming a dual thickness gate oxide by utilizing a high density plasma nitridation to selectively reduce the effective thickness of the gate oxide. However, Okuno does not teach, disclose, or suggest (1) covering a first area covering a first area in a dielectric to prevent exposure to a dielectric conversion source; (2) exposing a second area in the dielectric to a dielectric conversion source; or (3) increasing the first dielectric constant of the dielectric in the second area to a second dielectric constant. In fact, Okuno does not even mention a dielectric conversion source or a dielectric area having a dielectric constant. For the foregoing reasons, Applicant respectfully submits that the present invention, as defined by independent claim 1, is not suggested, disclosed, or taught by Okuno. Thus, independent claim 1 is patentably

distinguishable over Okuno and, as such, claims 2-10 depending from independent claim 1 are, a fortiori, also patentably distinguishable over Okuno.

The Examiner has further rejected claims 3-5 under 35 USC §103(a) as being unpatentable over Okuno in view of U.S. patent number 6,313,492 B1 to Hakey et al. (“Hakey”). As discussed above, independent claim 1 is patentably distinguishable over Okuno and, as such, claims 3-5 depending from independent claim 1 are, a fortiori, also patentably distinguishable over Okuno.

The Examiner has further rejected claims 6 and 7 under 35 USC §103(a) as being unpatentable over Okuno in view of U.S. patent number 6,303,391 B1 to Hintermaier et al. (“Hintermaier”). As discussed above, independent claim 1 is patentably distinguishable over Okuno and, as such, claims 6 and 7 depending from independent claim 1 are, a fortiori, also patentably distinguishable over Okuno.

The Examiner has further rejected claims 8-10 under 35 USC §103(a) as being unpatentable over Okuno in view of Hintermaier and further in view of U.S. patent number 6,372,632 B1 to Yu et al. As discussed above, independent claim 1 is patentably distinguishable over Okuno and, as such, claims 8-10 depending from independent claim 1 are, a fortiori, also patentably distinguishable over Okuno.

The Examiner has further rejected claims 11-17, and 23 under 35 USC §103(a) as being unpatentable over Okuno in view of U.S. patent number 5,925,960 to Greco et al. (“Greco”). For the reasons discussed below, Applicant respectfully submits that the

present invention, as defined by independent claims 11, 14, and 16 is patentably distinguishable over Okuno, Greco, or any combination thereof.

The present invention, as defined by independent claim 11, comprises features similar to those claimed in independent claim 1 and, as such, is patentably distinguishable over Okuno for the reasons discussed above. Furthermore features of the present invention taught by independent claims 1 and 11, such as covering a first area in a dielectric to prevent exposure to a dielectric conversion source and exposing a second area in the dielectric to the dielectric conversion source to increase a first dielectric constant of the dielectric in the second area to a second dielectric constant, are not taught, disclosed, or suggested by Greco. Greco specifically discloses an improved method for planarizing the surface of a layered semiconductor chip. See, for example, Greco, column 6, lines 15-17. For the foregoing reasons, Applicant respectfully submits that the present invention, as defined by independent claim 11, is not suggested, disclosed, or taught by Okuno, either singly, or in combination with Greco. As discussed above, independent claim 11 is patentably distinguishable over Okuno and Greco and, as such, claims 12 and 13 depending from independent claim 11 are, a fortiori, also patentably distinguishable over Okuno, Greco, or any combination thereof.

The present invention, as defined by independent claim 14, comprises features claimed in independent claim 1 and, as such, is patentably distinguishable over Okuno for the reasons discussed above. Furthermore features of the present invention taught by independent claims 1 and 14, such as exposing a second area in a dielectric to a dielectric

conversion source so as to increase a first dielectric constant of the dielectric in the second area to a second dielectric constant, are not taught, disclosed, or suggested by Greco. For the foregoing reasons, Applicant respectfully submits that the present invention, as defined by independent claim 14, is not suggested, disclosed, or taught by Okuno, either singly, or in combination with Greco. As discussed above, independent claim 14 is patentably distinguishable over Okuno and Greco and, as such, claim 15 depending from independent claim 14 is, a fortiori, also patentably distinguishable over Okuno, Greco, or any combination thereof.

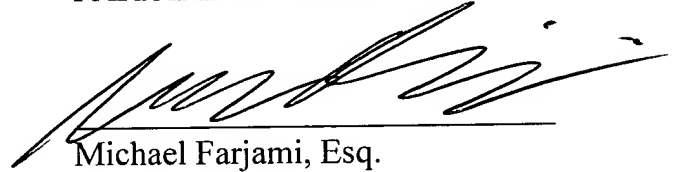
The present invention, as defined by independent claim 16, comprises features claimed in independent claim 1 and, as such, is patentably distinguishable over Okuno for the reasons discussed above. Furthermore features of the present invention taught by independent claims 1 and 16, such as exposing a second area in a dielectric, e.g. a gap fill dielectric, to a dielectric conversion source so as to increase a first dielectric constant of the dielectric in the second area to a second dielectric constant, are not taught, disclosed, or suggested by Greco. For the foregoing reasons, Applicant respectfully submits that the present invention, as defined by independent claim 16, is not suggested, disclosed, or taught by Okuno, either singly, or in combination with Greco. As discussed above, independent claim 16 is patentably distinguishable over Okuno and Greco and, as such, claims 17 and 23 depending from independent claim 14 are, a fortiori, also patentably distinguishable over Okuno, Greco, or any combination thereof.

The Examiner has further rejected dependent claims 18-20 under 35 USC §103(a) as being unpatentable over Okuno in view of Greco and further in view of Hakey. As discussed above, independent claim 16 is patentably distinguishable over Okuno and Greco and, as such, claims 18-20 depending from independent claim 16 are, a fortiori, also patentably distinguishable over Okuno, Greco, or any combination thereof.

The Examiner has further rejected dependent claims 21-22 under 35 USC §103(a) as being unpatentable over Okuno in view of Greco and further in view of Hintermaier. As discussed above, independent claim 16 is patentably distinguishable over Okuno and Greco and, as such, claims 21-22 depending from independent claim 16 are, a fortiori, also patentably distinguishable over Okuno, Greco, or any combination thereof.

Based on the foregoing reasons, the present invention, as defined by independent claims 1, 11, 14, and 16 and claims depending therefrom, is patentably distinguishable over the art cited by the Examiner. Thus, claims 1-23 pending in the present application are patentably distinguishable over the art cited by the Examiner. As such, and for all the foregoing reasons, an early Notice of Allowance directed to claims 1-23 pending in the present application is respectfully requested.

Respectfully Submitted,
FARJAMI & FARJAMI LLP



Michael Farjami, Esq.
Reg. No. 38, 135

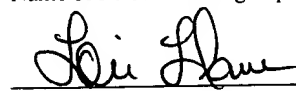
Date: 10/1/02

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VERSION WITH MARKINGS TO SHOW CHANGES MADE**In the Abstract:**

The abstract has been amended as follows:

Method for selective fabrication of high capacitance density areas in a low dielectric constant material and related structure are disclosed. In one embodiment, a first area of a dielectric layer is covered[, for example with photoresist,] while a second area of the dielectric layer is exposed to a dielectric conversion source [such as E-beams, I-beams, oxygen plasma, or an appropriate chemical]. The exposure causes the dielectric constant of the dielectric layer in the second area to increase. A number of interconnect trenches are etched in the first area of the dielectric and a number of capacitor trenches are etched in the second area of the dielectric. The interconnect trenches and the capacitor trenches are then filled with an appropriate metal, such as copper, and a chemical mechanical polish is performed. The second area in which the capacitor trenches have been etched and filled has a higher capacitance density relative to the first area. [In another embodiment, the exposure to the dielectric conversion source is not performed until after the chemical mechanical polish has been performed. In yet another embodiment, a blanket layer of metal, such as aluminum, is first deposited. The blanket layer of metal is then etched to form metal lines. Then a gap fill dielectric is utilized to fill the gaps between the remaining metal lines. A

first area of the gap fill dielectric is then covered and a second area of the gap fill dielectric is exposed to a dielectric conversion source. After exposure to the dielectric conversion source, the dielectric constant of the gap fill dielectric in the second area increases. The metal lines in the second area can then be used as capacitor electrodes of a high density capacitor.]